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Naturalistic Epistemologies and Normativity

ELISABETH PACHERIE
CNRS – Institut Jean Nicod, Paris

The main aim of this paper is to investigate what becomes of normativity in naturalistic epistemologies. What particular stand a given naturalistic epistemology takes on normativity will depend both on what it thinks is wrong with traditional epistemology and on what level of normativity is at stake. I propose a tentative typology of possible attitudes towards normativity from within naturalistic epistemology. In section I, I give a brief presentation of traditional epistemology, stressing the dimensions of this approach that may appear problematic to naturalists. In section II, I present and discuss the naturalist project in its radical form, as personified by Quine, who questions not only the way in which traditional epistemology proceeds in order to attain its objectives, but also the validity of these objectives. The last two sections concentrate on more moderate versions of naturalism. Section III investigates the various possible roles that may be assigned to psychology in these moderate forms of naturalism and the ensuing consequences vis-à-vis the problem of normativity. In section IV, I distinguish between two levels of normativity in epistemology, what I call the normativity of means and the normativity of ends and I discuss the prospects of a naturalization of epistemic ends.

0. Introduction

In the last thirty years or so, the naturalist approach to epistemology has emerged as an important rival to more traditional ways of pursuing epistemological enquiries. However, one should not take the label “naturalistic epistemology” to be referring to a single, well-defined, doctrine. Rather, this label functions as an umbrella term covering a set of approaches that question in more or less radical ways the tenets of classical epistemology and insist on the relevance of empirical research to epistemological investigations. One central characteristic of traditional epistemology in its various guises is that it conceives of epistemological enquiry as a form of normative enquiry. The main aim of this paper is to investigate what becomes of normativity in naturalistic epistemologies. One should not expect to find unanimity among naturalists on the issue of normativity.

Rather, as in other naturalistic ventures, one should expect to find different brands of naturalism vis-à-vis normativity, the stronger ones being eliminative naturalisms, the milder non-reductionist naturalisms, and, in between the two extremes, varieties of reductionist naturalisms. What particular stand a given naturalistic epistemology takes on normativity will depend both on what it thinks is wrong with traditional epistemology and on what level of normativity is at stake. What I will try to offer, then, is a tentative typology of possible attitudes towards normativity from within naturalistic epistemology. At the same time, I'll try to indicate what conditions should obtain for these different attitudes towards normativity to be vindicated and what I think their prospects are.

In section I, I give a brief presentation of traditional epistemology, stressing the dimensions of this approach that may appear problematic to naturalists. In section II, I present and discuss the naturalist project in its radical form, as personified by Quine, who questions not only the way in which traditional epistemology proceeds in order to attain its objectives, but also the validity of these objectives. The last two sections will concentrate on more moderate versions of naturalism, versions that do not question the aims of epistemology as traditionally conceived, but only the means chosen to pursue those ends. Section III will investigate the various possible roles that may be assigned to psychology in these moderate forms of naturalism and the ensuing consequences vis-à-vis the problem of normativity. In section IV, I'll distinguish between two levels of normativity in epistemology, what I call the normativity of means and the normativity of ends and I'll discuss the prospects of a naturalization of epistemic ends.

1. Traditional epistemology and what might be wrong with it

According to the traditional view, the main aim of epistemological enquiry is to determine what knowledge consists in and what makes knowledge possible. Typically, knowledge is viewed as a particular variety of true belief, namely justified true belief. As Kim [1988] points out, among the three notions of belief, truth, and justification, the most central for the epistemologist is that of justification. Although belief and truth may have an implicit epistemological dimension, belief is first and foremost a psychological notion and truth a semantic-metaphysical one. Therefore, epistemology has it as its specific task to provide an analysis of the notion of justification and to identify the criteria that beliefs must meet in order to qualify as justified beliefs. Since the concept of justification is fundamentally a normative concept, epistemology is at heart a normative discipline. That epistemology is essentially a normative venture can be considered as the first central tenet of traditional epistemology. Second, traditional epistemology is also characterized by an important meliorative dimension: an analysis of the conditions of knowledge should also help us improve our ways of attaining knowledge. Third, and most evident in the post-Fregean approaches to epistemological investigations, traditional epistemology conceives of epistemological enquiry as an a priori form of

enquiry based on logical or conceptual analysis. Apriority is thus the third main feature of traditional epistemology. Foundationalism, and in particular the post-Fregean varieties of foundationalism, can be offered as a prime example of this traditional approach. It is one of the main conceptions of how the traditional epistemological program should be carried out. It is also the main target of the naturalistic critique. Foundationalism comprises a variety of specific doctrines. However, all these doctrines share a conception of the structure of (justified) belief systems. Very sketchily then, foundationalism draws a distinction between two classes of justified beliefs: directly justified beliefs and indirectly justified ones. A belief is indirectly justified if it is justified in virtue of the relations that hold between it and other beliefs. It is directly justified, if its justification does not make reference to its relations to other beliefs. The task of the epistemologist can therefore be divided into two sub-tasks: (1) to spell out the conditions that a belief must satisfy in order to be directly justified and (2) to specify what relations must hold between a given belief and a set of other beliefs in order for the former to be indirectly justified by the latter. Versions of foundationalism differ in how they conceive of either direct or indirect justification. For instance, an important aspect of the classical debate between rationalists and empiricists concerned the nature of immediate justification. For the rationalists, the notion of immediate justification was linked to those of indubitability, infallibility or incorrigibility as borne out by intellectual intuition, whereas for empiricists, immediately justified beliefs were those directly based on sensory experience. As far as indirect justification is concerned there are also disagreements among adherents to foundationalism concerning which types of derivations are permissible.

Proponents of naturalistic approaches to epistemology contend that the problem of justification as conceived of by foundationalism is insoluble and hence that the foundationalist project is doomed to failure. They claim moreover that the foundationalist project is ill-conceived because it is based on aprioristic presuppositions and that a correct formulation of the problem of justification requires that these presuppositions be rejected. One can identify two forms of apriority of the foundationalist strategy. First, the strategy is aprioristic in the sense that epistemology is conceived as a form of investigation whose method is logical or conceptual analysis and which can and indeed should proceed independently of any considerations on how, historically, scientific theorization emerged and developed. Here apriority involves a refusal to take into account insights from history of science. Second, the strategy is aprioristic insofar as the proposed criteria for justification are logical and not psychological criteria. A belief is justified in virtue of its logical properties and/or logical relations to other beliefs. The psychological aspects of beliefs, in particular the psychological processes through which they are generated and sustained, are deemed irrelevant with respect to the problem of justification. Different forms of epistemological naturalism emerge depending on whether their critique of apriority is directed mainly against its anhistorical

or its apychological dimension and also on whether they take or not the collapse of apriority as an indication of the impossibility of pursuing epistemology as a normative enquiry.

2. Quine and naturalized epistemology

The main reason put forward by Quine in favour of a naturalization of epistemology in his famous paper “Epistemology naturalized” is the failure of the traditional quest for the foundations of knowledge.

Quine distinguishes two parts in the traditional foundationalist programme. Conceptual reduction aims at reducing, via definition, the meaning of physical and theoretical terms to the meaning of terms referring to the phenomenal features of sensory experience. Doctrinal reduction aims at reducing theoretical and physical truths to truths concerning sensory experience. According to Quine, we have known, at least since Hume’s discussion of induction, that the doctrinal part of the programme cannot be completed. The most modest of generalizations about observable traits will cover more cases than its utterer will have had occasion to actually observe. There is simply no way of deriving theory from observation while transmitting the latter’s certainty intact to the former. Deductive derivation is not possible and inductive derivation will not preserve certainty as deduction would. As for conceptual reduction, it is, according to Quine, made impossible by confirmation holism. Definitional reduction requires that the meaning of an empirical statement—i.e., from a verificationist perspective, its conditions of verification—be determinable independently of the meaning of other statements. But this is precisely what confirmation holism denies, claiming that “our statements about the external world face the tribunal of experience not individually but only as a corporate body” ([1951], 107). From this it follows that there is an inescapable indeterminacy of the translation of theoretical statements into empirical statements: there will always be several mutually incompatible ways of distributing empirical content among statements.

Therefore, the failure of the foundationalist programme is not an accident. It is the consequence of a principled insolubility, related, on the one hand, to the Humean predicament (induction cannot preserve certainty) and, on the other hand, to confirmation holism. Given the failure of the classical epistemological programme, one can either renounce epistemology altogether or conceive of the epistemologist’s task in a radically new way. The second option is the one favoured by Quine:

Epistemology still goes on, though in a new setting and a clarified status. Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz., a physical human subject. This human subject is accorded a certain experimentally controlled input—certain patterns of irradiation in assorted frequencies, for instance—and in the fullness of time the subject delivers as output a description of the three-dimensional external world and its history. The relation between the meager input and the torrential output is a relation that we are prompted to study for somewhat the same reasons that always prompted epistemology;

namely, in order to see how evidence relates to theory, and in what ways one's theory of nature transcends any available evidence. (Quine [1969a], 25).

This passage is generally considered as expressing a global rejection of the traditional epistemological approach, an approach that Quine would want to see replaced by a psychological approach. Roughly, the repeated failures of foundationalist attempts are supposed to show, not only that the way foundationalists were approaching epistemological problems was inadequate, but also that the problems themselves were ill-posed. Quine's proposal would then be to replace traditional epistemology, conceived as a normative and *a priori* enquiry, with a naturalized epistemology, conceived as an empirical and descriptive enterprise. This naturalized epistemology would still share with traditional epistemology an interest in elucidating how evidence relates to theory. In contrast to traditional epistemology, however, it would not aim at spelling out the criteria these relations should satisfy in order for the theory to qualify as knowledge, but to describe the psychological processes that operate in the construction of theories based on empirical evidence.

Quine's proposal has met with a number of objections. First, it was objected that the failure of the foundationalist programme did not justify a general condemnation of the epistemological enterprise as traditionally conceived. Kim [1988] for instance suggests that, even though the failure of the foundational programme is acknowledged, there remain other possibilities to be explored within the general framework of traditional epistemological enquiry:

perhaps, to adopt some sort of "coherentist" strategy, or to require of our basic beliefs only some sort of "initial credibility", rather than Cartesian certainty, or to permit some sort of probabilistic derivation in addition to deductive derivation of nonbasic knowledge, or to consider the use of special rules of evidence, like Chisholm's "principles of evidence", or to give up the search for a derivational process that transmits undiminished certainty in favor of one that can transmit diminished but still useful degrees of justification ([1988], 40).

One may think, however, that Quine would also want to reject these variants of the traditional approach. Quine wants to defend an empiricism purged of ill-founded dogmas. Yet, for him, two cardinal tenets of empiricism remain unassailable. One is that whatever evidence there is for science is empirical evidence and the other that all inculcation of meanings of words must rest ultimately on sensory evidence. This adherence to empiricist claims seems difficult to conciliate with the adoption of some form of coherentist strategy. Yet, the essential point I would like to mention is rather concerned with the deflationary versions of the foundationalist project. These deflationary versions attempt to relax the constraints on derivation and are ready to settle for something weaker than deductive derivation—i.e., derivations that, falling short of preserving certainty, do at least preserve some degree of credibility to the derived conclusions. However, such amendments cannot completely avoid Quine's criticisms of the foundationalist project. As we have seen, Quine distinguishes two main obstacles to the success of this project. One, on the

doctrinal side, is constituted but the inevitable dilution of certainty the further away derivations take us from the particular and the observable towards the general and the theoretical. This is the obstacle that the deflationary strategies aim at circumventing. But these strategies are powerless when confronted to the second obstacle, constituted, on the conceptual side, by confirmation holism. For, there, the underdetermination of theory by evidence is not confined to the degree of certainty of the derived propositions, but pertains to the choice among rival sets of propositions that are mutually incompatible and yet equally supported by the evidence. It seems to me that this difficulty constitutes for Quine the main motivation for a replacement of traditional epistemology by naturalized epistemology. What confirmation holism is supposed to show is that it is in principle impossible to adjudicate certain matters using *a priori* criteria. Given two rival sets of propositions, both equally compatible with the available sensory evidence, we have no way to determine *a priori* which of the two we should opt for. Traditional epistemology, insofar as it sets itself the task of providing *a priori* criteria allowing us to decide among theories or sets of beliefs on the basis of their epistemic merits, meets with a principled limitation in the guise of confirmation holism. Hence, the necessity for Quine of pursuing epistemology in a new setting, by giving empirical answers to questions insoluble by *a priori* methods.

However, this reorientation advocated by Quine meets with a second objection: by substituting psychological questions to traditional epistemological question, we are not naturalizing epistemology, we are changing topics. As Kim [1988] stresses, by demanding that we set aside the normative or prescriptive project of traditional epistemology in favour of a descriptive investigation of how sensory stimulation leads to the formation of beliefs about the world, it is the essentially normative notion of justification that Quine is asking us to repudiate. And since our concept of knowledge is inseparably tied to that of justification, if justification drops out of epistemology, knowledge drops out as well. True, Quine attempts to relate traditional and naturalized epistemology by claiming that both are interested in how evidence relates to theory. But, for Kim, this presumed similarity is at best superficial. What naturalized epistemology is actually interested in are the causal-nomological relationships between physical stimulations of sensory receptors and resulting cognitive output, whereas what traditional epistemology investigates are the evidential or justificatory relations, hence the normative relations between data and theory. As a consequence, it is difficult to see what traditional and naturalized epistemologies could have in common, be it at the level of the questions raised, of the topics studied, or of the methods employed. Kim's conclusion is that the type of investigation proposed by Quine, although it may well be a perfectly legitimate scientific enterprise, is not a variety of epistemology. Given their lack of common concerns, it is irrelevant to ask whether one could replace the other or be a better way of doing what the other purports to do.

One may wonder whether Quine is really inviting us to give up any form of normative epistemological enquiry, whether, in other words, his naturalistic epistemology should be seen as a brand of eliminativism vis-à-vis normativity. Certainly, this is the impression he gives in “Epistemology Naturalized”. But in more recent writings, he has attempted to correct this impression: “Naturalization of epistemology does not jettison the normative and settle for the indiscriminate description of ongoing procedures” (Quine [1986], 664).

It may be useful to distinguish here between normativity as linked with apriority and normativity as linked with a possibility of evaluation and a meliorative project. There is no doubt that Quine rejects the normative project of traditional epistemology insofar as this project consists in spelling out *a priori* norms of justification for beliefs. But it is less clear that Quine repudiates the normative dimension of epistemology if what is meant is that Quine rejects the idea that the epistemic merits of different belief-formation processes can be evaluated. Rather he denies that they can be evaluated without taking into consideration empirical data. In this respect, the analogy he draws between epistemology and engineering is illuminating: “For me normative epistemology is a branch of engineering. It is the technology of truth-seeking, or, in a more cautiously epistemological term, prediction. Like any technology, it makes free use of whatever scientific findings may suit its purpose” ([1986], 664-665).

This remark invites the following parallel. The civil engineer in charge of constructing a bridge or of evaluating different projects for a bridge must be able to assess the respective merits of alternative solutions and could not do that unless he had a good knowledge of the laws of (Newtonian) physics, the properties of different building materials, the geology of the construction site, the climatic conditions, and so on. Similarly, the “epistemic engineer”, looking for the most efficient ways of attaining knowledge won’t be able to do so unless he takes into account the cognitive capacities of epistemic agents and the conditions in which those capacities are exercised. If this is what Quine means, the relation of epistemology to psychology should be seen as analogous to the relation of civil engineering to physics. Quine’s original proposal to treat epistemology as a chapter of psychology should then be taken *cum grano salis*.

However, even if one considers that the correct interpretation of Quine’s advocacy of a naturalized epistemology is as a plea in favour of epistemic engineering, a number of questions remain open. In particular, one should specify in more detail how one conceives of the connection between psychology as a descriptive enterprise and epistemology as epistemic engineering and one should make explicit the conditions required for such a connection to hold. One may wonder moreover whether the role played by normativity in Quine’s project is really innocuous and can be confined to the assessment of means-end adequation. One may suspect that there is present in the choice of normative ends—such as truth and prediction, as suggested by Quine—a normative dimension that would be irreducible and would transcend the purview of naturalistic explanations.

We will now turn to these questions and examine the answers offered not by Quine himself but by “moderate” naturalists, explicitly committed to preserving a form of normative epistemology.

3. *Moderate naturalism and psychology*

The reasons put forward by Quine in “Epistemology Naturalized” in favour of a conversion to psychology are more negative than positive: it is the failure of the foundationalist programme that leads us to turn to psychology. But the philosophers I call moderate naturalists (also called by Kitcher [1992] “traditional naturalists” and by Kim [1988] “new naturalists”) adduce in favour of a reintroduction of psychology in epistemology a series of motivations that bear no direct relations to Hume’s problem or to confirmation holism. Roughly, moderate naturalists blame traditional epistemology, and especially Fregean epistemology which they see as the epitome of this type of approach, for the truncated character of their investigations. Traditional epistemology is charged with having lost sight of the fact that the question “How is knowledge possible?” should be seen as an abbreviation for the question “How is knowledge possible for beings like us in the world as it is?”. As a consequence, the question cannot be adequately answered unless we take into account (1) the cognitive capacities and limitations of human cognitive systems and (2) the nature of the world around us. In the case of justification, the truncated character of the traditional approach shows up in the fact that it only takes into account the logical relations between the propositions believed and neglects the psychological and causal relations among beliefs—in particular all the aspects related to the psychological generation of beliefs—as well as the causal relationships between mind and world. In short, naturalism asks that the causal antecedents of beliefs be taken into account. These causal antecedents can include cognitive events internal to the subjects as well as events in the external world in which the agent is situated. Different varieties of naturalism can be distinguished according to whether they require only that the cognitive antecedents be taken into account or that all causal antecedents, including those external to the subject, be taken into account. I shall here mainly concentrate on cognitive and psychological antecedents and on the reasons that motivate considering them.

Kitcher [1992] considers two sets of reasons that explain why psychology re-entered epistemology in the 1960s. The first set of reasons, internal to epistemology, is linked mainly to the tremendous impact made by a short article by Edmund Gettier [1963]. Gettier offered counter-examples to the classical analysis of knowledge as justified true belief (where justification is construed in terms of certain logical relations holding among propositions believed). Attempts to solve Gettier’s problem have led many to conclude that the additional requirements needed to fill the gap between knowledge and justified true beliefs were psychological in kind and not purely logical. That is, they were requirements on the causal processes that generate and sustain beliefs. This gave rise to a powerful ar-

gument in favour of psychologistic epistemology. Schematically, the argument takes the following form: for any analysis of knowledge or justification in terms of purely logical conditions, it is possible to give a counterexample where those conditions are satisfied, but the subjects lacks knowledge or justification because the psychological connections between his states of beliefs have nothing to do with the logical relations. To borrow an example from Kitcher:

assume that a subject justifiably believes that p , justifiably believes that $p \rightarrow q$, and believes that q . It might seem that the belief that q must be justified because there is an elementary logical inference to q from propositions that are justifiably believed. Nonetheless, it is easy to understand that the causes of the subject's belief may have nothing to do with this elementary inference, that she fails to make the inference and believes that q because of some thoroughly disreputable generative process ([1988], 60).

The second set of reasons that account for the reintroduction of psychology in epistemology has to do with the radical changes that occurred within psychology itself. The 1960s saw the demise of behaviourism and the emergence of cognitive psychology. Talk of mental processes, psychological mechanisms, innate knowledge, and so on, regained legitimacy. Detailed empirical models of the operation of these mechanisms and processes became available.

To sum up, then, Gettier's problem paved the way for a naturalistic approach by suggesting that the epistemologist cannot succeed in his normative investigation of the conditions for justification and knowledge unless he takes into account the psychological dimension of cognition. The development of cognitive psychology, and more generally of cognitive science, provided new insights into psychological mechanisms and processes that could be exploited by the naturalist epistemologist. The main characteristics of moderate naturalism are thus the following. First, as regards the general conception of the proper aim of epistemological enquiry, moderate naturalism retains the normative and meliorative dimension of the traditional approach. It insists however on the fact that it is human cognition that is at stake. This is well summarised by Kitcher who claims that for moderate naturalism:

The central problem of epistemology is to understand the epistemic quality of human cognitive performance, and to specify strategies through whose use human beings can improve their cognitive states (Kitcher [1988], 74).

Second, as regards the implementation of this epistemological programme, moderate naturalism insists that the epistemic status of a state depends on the nature of the psychological processes that generate and sustain it. It claims therefore, that the epistemologist's task is to state the conditions that those psychological processes must satisfy in order to yield knowledge or justified beliefs and to determine which processes do in fact satisfy those conditions. Finally, it insists that, in stating those conditions, it is essential to take into account the constraints imposed both by the world as it is and by existing cognitive systems. Reliabilist theories

are prime instances of this moderate brand of naturalism, since their main claim is that the epistemic status of a belief is a function of the reliability of the processes that cause this belief to be formed—where reliability can be characterized in first approximation as the tendency to yield a high ratio of true beliefs.¹

This general characterization leaves room for important differences in the appreciation of the exact relevance of psychological work to epistemology. In the remainder of this section, I'll try to pin down more precisely the exact nature and importance of the psychological contribution to epistemology. The next section will concentrate on the problem of defining the epistemic ideal and on the nature of the form of normativity endorsed by moderate naturalists.

We have seen that moderate naturalists claim that justification can be analysed at least in part in terms of the conditions that must be satisfied by the psychological processes responsible for generating and sustaining beliefs. One important question to ask is what role psychological results can play when trying to formulate these conditions. Is this role merely negative, insofar as psychological data would only be used to delimit the range of the possible, that is to delimit what is feasible from the point of view of human cognition given its limitations? Or can this role be positive in the sense that we might have reasons to think the psychological processes actually involved in the generation of beliefs are epistemically warranted? In short, what is the relationship between our psychological processes as they are and as they should be in order to yield justified beliefs?

Psychologism claims that our processes are as they should be. If such is the case, the epistemologist's task is to examine descriptions of our psychological processes in order to extract the properties that these processes share in virtue of which they yield justified knowledge. However, if it is not the case that our actual psychological processes are epistemically warranted, the relevance of psychology to epistemology will be of a different nature. From psychological work on human cognitive processes, the epistemologist would have to extract constraints on the types of epistemic requirements he may impose without lapsing into utopia.

Two rather different kinds of arguments have been advanced in favour of Psychologism: the argument from mutual interpretability and the Darwinian argument.

Versions of the argument from mutual interpretability have been given notably by Davidson [1974], Dennett ([1978], 3-22), Quine ([1960], chapter 2), Harman [1982] and in a weaker form by Kim [1988]. Schematically, the argument from mutual interpretability claims that it is impossible to give an intentional description of the cognitive states of an other being without presupposing that the being in question conforms to the same norms of rationality as we do. Beings who reason in a way different from ours would be unintelligible to us and thus we would not count them as rational. In Harman's version, the argument goes as follows:

¹ One of the main advocates of the reliabilist approach is A. I. Goldman. See, for instance, Goldman [1986] and Goldman [1992].

We normally assume that there are basic principles of rationality that apply to all normal human beings ... We come to understand someone else by coming to appreciate that person's reasons for his or her beliefs and actions, or by seeing how that person made a mistake. Someone who reasoned in a fundamentally different way from the way in which we reason would really and truly be unintelligible to us ... In assuming, as we normally do, that we can make sense of other people, given sufficient information about them, we presuppose that everyone else operates in accordance with the same basic principles as we do ([1982], 570-571).

Harman's idea is that since individuals that reasoned in a way different from ours would be unintelligible to us and hence would not appear rational to us, the only rational individuals are ones that reason as we do. In other words, the way we reason is also the norm of rationality. As noted by Kornblith [1993b] who discusses this argument, it would have to be interpreted in quite a strong way in order to serve as an argument for Psychologism. In order for the epistemologist to be able to pick out directly the norms of rationality from descriptions of our psychological processes, these processes would have to be perfectly uniform across individuals. Any difference whatsoever in the ways individuals reason would have to result in mutual uninterpretability. If it was admitted that individuals can remain intelligible to us despite minor differences in the way they reason, psychology could certainly describe the different ways in which individuals reason, but it would give us no clue as to which of these ways of reasoning is the way one ought to reason. The most common objection to this type of argument is that it imposes conditions that are much stronger than necessary on the attribution of mental states to others. Stich [1983], for instance, argues in favour of a condition of cognitive similarity that allows for degrees and leaves open the possibility of interpretation despite differences in the reasoning processes.

Another commonly advanced argument in favour of Psychologism is the Darwinian argument. The most famous formulation of the argument is that of Quine [1969b], but the argument is also found in the writings of Dennett [1981], Fodor [1981], Goldman [1986], Lycan [1988], Millikan [1984], Papineau [1987], and many others. Here's a short sample, borrowed from Stich [1990]:

Quine: "Creatures inveterately wrong in their inductions have a pathetic but praiseworthy tendency to die out before reproducing their kind" ([1969b], 66).

Dennett: "Natural selection guarantees that most of an organism's beliefs will be true, most of its strategies rational" ([1981], 75).

Fodor: "Darwinian selection guarantees that organisms either know the elements of logic or become posthumous" ([1981], 121).

Roughly, the idea is that believing truths is more fitness-enhancing than believing falsehoods: a creature most of whose beliefs are true has a better chance to survive and reproduce than a creature that is more error-prone. Natural selection will therefore favour organisms endowed with cognitive systems that do a better job at producing truths and avoiding

falsehoods. The fact that we are not posthumous is thus an indication that our belief-generating processes do a good job at producing truths.

Here again, the Darwinian argument must be given a very strong reading if it is to support Psychologism. In order to defend the view that the processes by which we arrive at beliefs just are those by which we ought to arrive at them, it is necessary to treat natural selection as an optimizer always choosing the best-designed systems. If natural selection is merely a satisficer, that will favour well-designed but not necessarily optimally designed solutions, the epistemologist will not be in a position to argue that, since they are the product of evolution, our belief-generation processes are as they ought to be epistemically.

If natural selection does not guarantee the optimality of our belief-generation processes, the epistemologist cannot discover the processes by which we ought to arrive at beliefs by simply studying the processes by which we actually arrive at beliefs. If it is admitted that natural selection behaves as a satisficer, the epistemologist may nonetheless hope to draw insights from the empirical work of psychologists, insofar as it may be thought that our belief-generation processes accomplish a job that although not perfect remains satisfactory.

Moreover, one may still object that even if our reasoning processes are the product of natural selection and hence are if not optimal at least satisfactory, this natural selection took place in an environment—roughly, that of Palaeolithic times—that has little to do with our present environment, which is largely the product of our own activities. If it is true that human beings change their environment at a rhythm that natural selection cannot follow, nothing guarantees that reasoning processes that were adapted to the way of life and needs of Palaeolithic hunter-gatherers give correct results when reasoning about quantum mechanics or medical statistics. One might therefore claim that the processes selected by natural selection have a contextual validity, limited to a given domain and that it would be misguided to try to draw general lessons from them. This does not mean however that studying them would necessarily be a waste of time for the epistemologist. One task he can set himself or herself is to extract the relevant characteristics of the domain for which a given process was selected, in order to be in a position to decide for which other domains, featuring similar characteristics, the process may still be valid.

But there is more radical objection to the use made of the Darwinian argument in epistemology. The argument, whether given a stronger or a weaker interpretation, assumes that a higher epistemic virtue—for instance, generating a higher proportion of true beliefs—goes hand in hand with a higher adaptive value. This assumption is contested by Stich [1990] who argues that higher epistemic value is not necessarily favoured by natural selection and that an inferential system that is less reliable may be preferred to a more reliable one. Stich offers a pair of arguments in favour of this claim. The first has to do with internal fitness, where internal fitness is a function of the ratio between cost (the demands made on the resources of the organism) and benefit (the value of the information

obtained). It is possible that a more reliable inferential system be so expensive in terms of time, effort, and cognitive hardware, that the game is not worth the candle. In other words, the cost may be too high given the expected epistemic benefit. The upshot is that natural selection might well select a less reliable inferential system over a more reliable one because the less reliable one has a higher level of internal fitness. Stich's second argument concerns external fitness, i. e. the conduciveness to survival and successful reproduction of the input-output mapping one genetic program effects. There are two different ways in which an inferential system might get the wrong answer. He may infer that p is the case when p is not the case (false positives) or he may infer that p is not the case when p is the case (false negatives). There are numerous circumstances, in which one sort of inferential error may be relatively unimportant to the organism fitness, while the other sort may be enormously detrimental. Suppose that in a given environment, a false positive on the question whether p is relatively cheap for an organism, but that false negatives are much more costly. It is quite possible that in the absence of a fully reliable inferential system, natural selection might select a less reliable system that produces quite a number of false positives but very few false negatives to a system that is globally more reliable but produces a higher number of false negatives. In short then, if we cannot rest assured that epistemic virtue is intrinsically fitness enhancing, we have no reason to believe that natural selection will prefer the cognitive systems that do a better epistemic job.²

If Stich is right, psychological results cannot serve as a positive source of inspiration for the epistemologist. The only lessons he may draw from those results concern the psychological limitations of human cognitive agents, limitations that function as constraints on the type of epistemic strategy that the epistemologist may reasonably propose.

4. *Epistemic goals, epistemic ends and normativity*

We have seen that moderate naturalism retains a meliorative dimension and sets itself the task of specifying strategies allowing agents to better achieve their epistemic goals. In this sense, a belief is justified insofar as it is the outcome of the application of one or several such strategies. But is that all there is to justification? It might be useful here to draw a rapid parallel with the problem of the rationality of action. Suppose a student wants to infuriate her thesis advisor, who happens to be an analytic philosopher, and thinks that the best way to do it is to quote Heidegger and Derrida at length. One may say that she acts rationally by doing so, insofar as the means chosen are likely to be appropriate to the end pursued. But one may also say that according to a more demanding standard of rationality, her behavior is irrational because her goal is. It is both irrational and dangerous to infuriate one's thesis advisor. It seems therefore that beyond a purely instrumental notion of rationality, concerned solely

² For a detailed discussion of these issues, see Stich [1990], especially chapter III.

with means-end adequation, there is room for a more substantial notion of rationality that takes into account the nature and value of the ends pursued. Similarly, one may think that beyond a purely instrumental notion of justification, there is room for a notion of justification that takes into account the nature of the epistemic ends pursued. That is why it is necessary to ask what those ends are and what grounds them. Moreover, if the problem of justification extends to epistemic ends, one may wonder whether the naturalist epistemologist can provide an account of our epistemic goals. Are our epistemic ends irreducible norms that transcend the purview of naturalistic enquiry or might those epistemic ideals themselves be naturalized?

Until now, I have tacitly assumed that truth was the epistemic ideal *par excellence*. It is now time to take a closer look at this assumption. First, the claim that truth is the ultimate epistemic good is in need of qualification. As Kitcher [1992] remarks, attainment of truth can be trivial and there are innumerable questions about the world that have no interest for us (who could be dying to know whether the number of sheep in New Zealand is now prime or not?). Beside truth other epistemic values are important for us: explanation, prediction, coherence, a unified vision of nature, and so on. Even if we set aside those “extra complications” and settle for truth as the supreme epistemic good, a serious problem remains. Is our interest in truth totally unrestricted or are we interested in truth with respect only to a certain class of possible situations? Goldman, himself an advocate of truth as the supreme epistemic good, offers a clear statement of the problem:

Is the rightness of a rule system determined by its truth ratio in the actual world, and in that world only? Or should the performance of the rule system also be judged by its performance in other possible worlds? Or is a still different performance measure appropriate? Obviously, a given rule system could perform well in one possible world—say the actual world—and poorly in another. Which possible worlds are relevant to the rightness of a rule system, and ultimately to the justifiedness of a belief formed in compliance with the system? ([1986], 106).

As this passage shows, even if we grant truth a prominent epistemic value, we need to decide among several possible epistemic ideals: truth in all possible worlds, truth in the actual world, truth in the world in which the system operates, truth in a set of possible worlds sharing certain features, and so on. Goldman’s [1986] favoured solution corresponds to the last possibility. He suggests that we take as our epistemic ideal truth in normal worlds, where normal worlds are defined as the set of possible worlds consistent with our general beliefs about the actual world.

Whatever epistemic ideal one opts for, there remains to answer the question what motivates this choice. There are, I think, three broad kinds of answers and I shall try to characterize the implications of each of them with respect to the normative status of epistemic enquiry. Goldman argues in favour of his own choice of epistemic ideal—truth in normal worlds—by claiming that it is the proposal that best fits our intuitive

conception of justifiedness. Similarly, a number of philosophers claim that their conception of the epistemic ideal is the outcome of an analysis of our epistemic intuitions and ordinary epistemic concepts. But such an answer may not be taken as satisfactory, for one may now ask why we should grant special value to those intuitions and concepts. A first possible kind of answer would be to say that, far from being arbitrary, those concepts reflect a universally shared notion of epistemic good that is for us intrinsically valuable. In other words, according to this view, the fact that we value the epistemic goals revealed by an analysis of our intuitions and ordinary concepts is both basic and irreducible.

A second possible kind of answer acknowledges that the epistemic ideal revealed by an analysis of our concepts and intuitions is not necessarily universal or timeless and may not be intrinsically valuable, but it holds that this ideal has an instrumental value. Arguments in favour of this type of answer are typically Darwinian or evolutionary in spirit. They go somewhat like this: our conception of the epistemic ideal is the outcome of a long evolutionary process and this ideal was preferred to other alternatives because regulating our epistemic behaviour on it was conducive to survival and reproductive success in members of our species. Variants of the argument may also appeal to social evolution instead of natural evolution. In such cases, the reasoning is the following: our epistemic ideal is a cultural product that evolved under the pressure of social selection, where social selection favours epistemic ideals that are better adapted and more useful as instruments towards the satisfaction of other, social, ends. A third kind of answer considers that our epistemic ideals are historically and culturally variable, but, in contrast to the second answer, it does not interpret these changes of ideals over times as an indication of epistemic progress and indeed points out that these successive epistemic ideals might not even be commensurable. According to this last conception, the choice of an epistemic ideal is largely pragmatic in character.

Let us now go back to the question of the normativity of epistemology. We have seen that, insofar as moderate naturalism remained faithful to the meliorative ideal of traditional epistemology, it kept a normative dimension and set itself the task of formulating criteria for assessing the merits of various cognitive strategies or processes with respect to a given epistemic ideal. Moderate naturalism is therefore a normative enterprise in this minimal sense that it sees it as its task to offer norms or criteria for evaluating the adaptation of epistemic means to epistemic ends. If one concentrates on this aspect of the naturalist enterprise, its normativity does not exceed the normativity contained in the task of the civil engineer in charge of evaluating projects for the construction of a bridge. It is a weak form of normativity insofar as the epistemic criteria that one is looking for will be stated in naturalist terms, that is in terms of conditions that causal processes must satisfy. But normativity is involved in another way in the epistemological inquiry and this time the question is not that of the normativity of epistemic means but of the normativity of epistemic ends. It is not enough to ask how we ought to proceed in order

to achieve our epistemic goals, it is also necessary to decide what epistemic goals we should set ourselves and why.

The three kinds of answers I sketched above suggest different conceptions of the normativity of ends. Suppose, to keep things simple, that in all three cases truth about nature be taken as the epistemic ideal. To the question why this ideal, the first answer offered is that truth has an intrinsic value, that it is a basic, irreducible, norm. If the naturalist accepts this answer, he introduces in his naturalized epistemology a form of normativity much stronger than the normativity afferent to normative means, since he acknowledges that the ultimate epistemic norm cannot be specified in non-epistemic terms, that it can neither be defined nor reduced in naturalistic terms.

Moderate naturalism must then be conceived of as non-reductionist with respect to normativity or, as Kim [1988] suggests, as a thesis of strong supervenience: epistemic properties supervene on naturalistic ones. This thesis of epistemological supervenience holds not that epistemic values, such as justification, are not reducible to facts, but that they must be consistent with them. This means (1) that objects that are indiscernible in regard to fact must be indiscernible in regard to epistemic value and (2) that certain factual properties of objects must be reasons or grounds for the attribution of epistemic value and that those reasons or grounds must be generalizable to some extent, i. e. covered by rules or norms. (Notice that it is the second clause that makes epistemological supervenience a form of strong supervenience.) From this standpoint, what accounts for the specificity of the naturalist project vis-à-vis more traditional forms of epistemological enquiry, is that it requires that the factual properties involved in the definitions of rules or norms be psychological and causal properties.

According to the second kind of answer, although truth (or some other value) is our epistemic ideal, it is not an end in itself, but a means toward other ends; in other words, our epistemic ideal has merely instrumental value. The form of normativity implied by this second answer is thus weaker than the one implied by the first answer. Insofar as our epistemic ideal is considered as a means towards other ends, it may be said to constitute a second-order form of normativity of means. Yet, is it really a harmless form of normativity? This depends on what ends we take it to be a means for and on the status of those ends. If one accepts a Darwinian argument to the effect that truth has instrumental value insofar as it makes a positive contribution to the satisfaction of our ultimate biological ends—survival and reproduction—, one opts for a thoroughly naturalistic reduction of normativity. One takes it that epistemic norms can be defined in terms of biological norms, the latter being seen as unproblematic for naturalists. However, for this strategy to work it must be shown that truth has instrumental value with respect to our biological ends. But, as Stich's arguments show, that such a demonstration be forthcoming is far from obvious.

If instead of the biological route, one takes the social route and considers that our epistemic ideal has instrumental value as a means towards the achievement of our social ends, whether epistemic ends will be naturalizable will depend on whether our social ends are. If we can naturalize our social ends, epistemic ends defined in social terms will also be naturalizable. If it is not possible to naturalize social ends, our epistemic ideals will inherit their normativity from the normativity of social ideals. In the former case, there will be a naturalistic reduction of epistemic ends; in the latter case, there will simply be a reduction of epistemic normativity to another, non-epistemic, form of normativity.

Finally, the third answer, that emphasizes the diversity of epistemic ideals across times, cultures or domains, can give rise to two types of attitudes. The first interprets this diversity as evidence for the pointlessness of a normative enterprise. Given the multiplicity of epistemic ideals and the absence of meta-epistemic criteria for evaluating those ideals, the project of a universal normative enterprise is doomed to failure. The only thing we can still do is describe the epistemic ideals and practices of a given time and place. From this standpoint, epistemology is normative only insofar as it attempts to evaluate the conformity of the epistemic practices of individuals or groups to the epistemic ideals they profess. The second attitude consists in considering, first, that the plurality of norms does not exclude their having instrumental value and, second, that depending on what (non-epistemic) goal one sets oneself, different epistemic ideals may constitute more or less efficient instruments. This is for instance Stich's [1990] position. He takes it that there is both a plurality of epistemic ideals and a plurality of intrinsic (non-epistemic) values. The epistemologist's task is therefore to examine the consequences of adopting this or that epistemic ideal with respect to the advancement of such or such other end. In short, epistemic ideals and strategies are seen as tools for the attainment of other ends and their value is a function of their efficacy, with the proviso that depending on the ends pursued different tools may prove more or less appropriate.

If one opts for the latter attitude, the problem of the normativity of epistemic ideals takes the same form as for the second answer. Epistemic normativity is not strictly irreducible insofar as it can be defined in terms of other norms that are seen as the ends for which epistemic norms constitute a means. But the epistemic ideal is fully naturalizable only if these other norms are. If they are not, an irreducible form of normativity persists, but it is not epistemic in kind.

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